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CLINICAL CASE

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CLINICAL CASE OF SUCCESSFUL APPLICATION OF REOSTEOSYNTHESIS STERNUM IN CHRONIC POSTOPERATIVE STERNOMEDIASTINITIS

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The authors described the clinical observation of postoperative sternomediastinitis. The feasibility of a two-stage surgical treatment of this pathology was noted: the first stage is the removal of ligatures and necrectomy of the sternum, the second is the resection of the sternum with plastic replacement of the wound defect. At the integrity of the sternum, the authors propose to perform surgical intervention, including the preservation of bone tissue, sternal rheosteosynthesis.

Keywords: osteomyelitis of the sternum, sternomediastinitis.

Postoperative sternal wound infections is a severe threatening complication of open cardiac surgery and it is associated with high mortality [2, 4]. Clinical experience of postoperative sternal wound infections treatment [1, 3, 5, 6] indicates the need for two-stage treatment of this pathology, due to the severe general condition of patients in the onset of the disease, the severity of concomitant chronic pathology and the inability to perform wound plastic operation in purulent necrotic infection conditions.

According to the accepted technique of treatment in the Regional Clinical Hospital №1 in Khabarovsk [5], the first stage is the wound surgical treatment, including the removal of foreign bodies, necrectomy of infected bone fragments of the sternum. Due to the inflammatory nature of the wound, it is not sutured and open treatment is carried out by bandaging. As the wound is cleaned, which is controlled macroscopically and microbiologically, the second stage is the extensive resection of the sternum with plastic replacement of the chest wall wound defect. However, it should be noted that it does not always achieve a positive result in the form of primary healing. In this regard, in our view, this clinical case of the reosteosynthesis execution in the process of two-stage treatment of the patient with postoperative sternal wound infections with a positive outcome would be interesting to experts.

18.04.18 Patient K. aged 70, first entered the Thoracic Department of the Regional Clinical Hospital №1 in Khabarovsk. At the time of admission, he complained of pain in the lower third of the sternum, the presence of fistulas in the middle third of the scar with purulent discharge. During examination: the chest in the region of the median line had the sternotomy immature scar in the lower third of which there was a fistula sized 0.2

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x 0.5 cm with purulent discharge. There was redness of the skin and swelling of the edges of the tissues around the fistula. At palpation moderate soreness in the lower third of the sternum was determined. SCT showed the features of the sternum subtotal osteomyelitis.

From the history of the disease: 2.04.2018 in the Federal Center of Cardiovascular Surgery in Khabarovsk, the sternotomic access surgery mammarocoronary bypass of the anterior descending artery, autovenous bypass of the artery of the blunt edge, posterior interventricular artery were performed. In the postoperative period, after discharging, 12.04.2018 there was redness of the skin on the sternal scar, the occurrence of pain, and 17.04.2018 in the lower third of the scar fistula with purulent discharge opened. He was examined by a thoracic surgeon and then sent to the Thoracic Department in Regional Clinical Hospital №1 for treatment. Anamnesis of life: Coronary heart disease: Stable angina of FC III. Postinfarction cardiosclerosis (2008). Atherosclerosis of the coronary arteries: the defeat of several vessels. Hypertension, stage III, degree 2, risk 4. CH2 A, II FC by NYHA. Prostate cancer T2NxM0, II CL. gr.. ICD (DT 2016). CKD 2 st. (GFR 68 ml/min). Chronic cholecystitis, adipose hepatosis, chronic obstructive pulmonary disease, remission phase.

The patient was hospitalized in the Thoracic Surgery Department with the acute postoperative sternal wound infections diagnosis (fistula formation). At the first stage of the treatment (18.04.18 - 25.05.18) a surgical revision of the wound was performed (24.04.18), the sternal ligatures were removed, the sanation of the mediastinum was performed. In the process of surgical intervention the consolidation of the sternum was not stated, the severe acute sternal wound infection was observed. In the postoperative period, open wound care was performed. The patient got a course of antibacterial (cefepime, ciprofloxacin, vancomycin), anti-inflammatory and cardiotropic therapy, bandages with antiseptics, including vacuum bandages, were used. As a result of the therapeutic measures, the patient's condition was stabilized, the discharge from the wound decreased, became meager and mucous. The microbiological spectrum of the wound allowed to continue further surgical treatment.

The patient returned to the hospital for the second stage (02.07.18 – 03.08.18) of the surgical treatment (Fig. 1). Taking

Fig. 1. Patient K., 70 years old: the appearance of a wound in the sternum area before the second stage of surgical treatment

the integrity of the sternum (there was an isolated fracture of the left half of the sternum) and absence of purulent changes in the bone tissue we decided to perform sternal rheosteosynthesis.

20.07.2018 there was the operation - mediastinotomy excision, the sternal rheosteosynthesis. In the process of surgery, the edges of the mediastinotomy were cut; the skin wound was expanded in the cranial direction to the edge of the sternal hilt. Fragments of the sternum were mobilized from the anterior mediastinum, while the right pleural cavity in the lower third of the sternotomy was opened. The drainage of the right pleural space was performed in the 5th intercostal space along the middle clavicle line of the PVC drainage valve along the Bulau. The revision revealed a transverse fracture of the upper third of the left half of the sternum. The thorough curettage of the surface of the sternal fragments with partial edge resection of the protruding edges, the scraping of the granulation tissue were conducted. The mediastinum was sanitized. The sternum fragments were fixed with three 8-shaped and one U-shaped sutures. The wound was sutured tightly. The postoperative period passed without complications, the patient got vancomycin, metrogil, kvamatel and cardiac medications. The pleural drainage was removed on the fifth day. The wound was healed by the primary intention. On the 14th the patient was discharged with detailed recommendations for further outpatient treatment.

Conclusion. In the treatment of sternomediastinitis, in our opinion, it is advisable to use a two-stage method of the surgical treatment: on the first stage it is necessary to perform a resternotomy,

a b

Fig. 2. a) Mobilized half of the sternum
b) Fixation of the sternum

remove foreign bodies and sequesters of the sternum; the second stage is the implementation of resection of the sternum with plastic replacement of the wound defect of the chest wall. In the case of the sternum integrity, the absence of pus and adequate microbiological purity of the wound the implementation of sternal rheosteosynthesis is justified as the second stage.

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